

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/27608

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H01L 31/0272, 31/04, 31/072
 US CL : 136/262, 264, 265; 438/93, 94, 95

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 U.S. : 136/262, 264, 265; 438/93, 94, 95

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- A	DELAHOY et al. Charging and Discharging of Defect States in CIGS/ZnO Junctions. Thin Solid Films. 2000, Vol. 361-362, pages 140-144, especially page 361.	18, 19 ----- 1-17
X --- A	YAMADA et al. 'Buried pn Homojunction in Cu(InGa)Se ₂ Solar Cells Formed by Intentional Zn Doping.' In: Conference Record of the 28th Photovoltaic Specialists Conference. IEEE, 15-22 September 2000, pages 462-465, especially page 462.	18, 19 ----- 1-17
X --- A	NISHIWAKI et al. Preparation of Zn Doped Cu(In,Ga)Se ₂ Thin Films by Physical Vapor Deposition for Solar Cells. Solar Energy Materials & Solar Cells. 01 June 2003, Vol. 77, No. 4, pages 359-368, especially pages 360-361.	18, 19 ----- 1-17
X --- A	RAMANATHAN et al. 'Surface Treatment of CuInGaSe ₂ Thin Films and Its Effect on the Photovoltaic Properties of Solar Cells.' In: National Renewable Energy Laboratory conference paper preprint. NREL: Colorado, October 2002, pages 1-6, especially page 1.	18, 19 ----- 1-17



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

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Date of the actual completion of the international search

19 April 2004 (19.04.2004)

Date of mailing of the international search report

07 MAY 2004

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INTERNATIONAL SEARCH REPORT

C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- A	US 6,346,184 B1 (SANO et al) 12 February 2002 (12.02.2002), examples 16 at column 19.	18, 19 ----- 1-17
A	TERHEGGEN et al. Ga ₂ O ₃ Segregation in Cu(In, Ga)Se ₂ /ZnO Superstrate Solar Cells and its Impact on their Photovoltaic Properties. This Solid Films. 2002, Vol. 403-404, pages 212-215.	1-19



Declarations under Rule 4.17:

- as to the identity of the inventor (Rule 4.17(i)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY,

CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

- of inventorship (Rule 4.17(iv)) for US only

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